

WHAT IS CLAIMED:

1. A catheter system for introducing and implanting a stent in a body comprising:

a catheter member having first and second ends, said first end having an inflatable portion, a lumen in fluid communication with said inflatable portion and said second end to provide means for inflating said inflatable portion;

an expandable stent member capable of permanent deformation when expanded, at least a portion of said stent member being attached to said inflatable portion by a bond, whereby upon inflation of said inflatable portion said bond is released from said stent to permit deployment of said stent member and removal of said catheter member.

2. The catheter system of claim 1 wherein said bond is an adhesive.

3. The catheter system of claim 1 wherein said bond is formed from said inflatable portion.

4. The catheter system of claim 1 wherein said bond is comprised of the same material as said inflatable portion.

5. The catheter system of claim 4 wherein said stent member is at least partially depressed into said inflatable portion to create said bond.

6. The catheter system of claim 5 wherein said stent member is depressed into said inflatable portion to a depth of about one twentieth to about one half of the wall thickness of said inflatable portion.

7. The catheter system of claim 1 wherein said stent member is formed of wires or an expandable tubular member with perforations.

8. The catheter system of claim 1 wherein said inflatable portion comprises a thermoplastic elastomer.

9. The catheter system of claim 8 wherein said thermoplastic elastomer is a polyurethane.

10. The catheter system of claim 9 wherein said catheter member is formed from a non-elastomeric thermoplastic material.

11. The catheter system of claim 10 wherein said non-thermoplastic material is selected from the group consisting of polyethylene, polyethylene terephthalate and mixtures thereof.

12. The catheter system of claim 10 wherein said inflatable portion is formed of a non-elastomeric material enclosed within an elastomeric material.

13. The catheter system of claim 2 wherein said adhesive has a modulus of elasticity which is sufficiently similar to the modulus of elasticity of said inflatable portion such that upon expansion of said inflatable portion said bond does not separate from said inflatable portion and sufficiently less than the modulus of elasticity of said stent member such that bond will separate from the stent member upon inflation.

14. The bond of claim 13 wherein said adhesive is a polyurethane.

15. A method for producing a catheter system for introducing and implanting a stent member, said method comprising the steps of:

(i) positioning an expandable, permanently deformable tubular shaped stent member around an inflatable portion of a catheter member;

(ii) softening the surface of said inflatable portion; and

(iii) allowing the softened surface to return to its original unsoftened state, thereby adhering to said stent member.

16. The method of claim 15 wherein said softening is achieved by application of heat.

17. The method of claim 15 wherein said softening is achieved by application of a solvent.

18. The method of claim 15 wherein said depressing is achieved by inserting said catheter system into a heated fixture.

19. The method of claim 17 wherein said heated fixture is maintained at between about 50°C and 250°C.

20. The method of claim 15 wherein said depressing embeds said stent member to a depth of about one twentieth to about one half of the wall thickness of said inflatable portion.

21. A method for producing a catheter system for introducing and implanting a stent, said method comprising the steps of:

(i) positioning an expandable, permanently deformable, tubular shaped stent around an inflatable portion of a catheter member; and

(ii) forming an adhesive bond at at least a point of contact between said stent and said inflatable portion, said bond having an elastic modulus which is sufficiently lower than the elastic modulus of the stent and sufficiently similar to the elastic modulus of said inflatable portion such that upon expansion of said inflatable portion said bond will be released from said stent but not from said inflatable portion.

22. The method of claim 21 wherein said forming step further includes:

softening a surface of said inflatable portion at said point of contact with said stent to adhere said stent to said inflatable portion.

23. The method of claim 21 wherein said forming step further includes:

applying an adhesive to said inflation portion at said point of contact with said stent.

24. The method of claim 23 wherein said applying step further includes:

providing an adhesive having a modulus of elasticity which is substantially similar to the modulus of elasticity of said inflation portion.

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